REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

By way of this Amendment, the subject matter recited in Claims 5 and 7 has been incorporated into independent Claim 1. Thus, entry of this Amendment is appropriate as it does not raise any new issues. In addition, this Amendment cancels a number of dependent claims, thus reducing the issues on appeal.

The subject matter of Claim 7, which is now set forth in Claim 1, has been changed slightly to address the issue raised in the middle of page two of the Official Action. That is, Claim 1 recites that the target parking position is changed to a newly set target parking position by the change of the target parking position. This language is more consistent with other language used in the claim and the concern raised in the middle of page two of the Official Action is no longer at issue. Accordingly, withdrawal of the claim rejection based on the second paragraph of 35 U.S.C § 112 is respectfully requested.

Claim 1 presented in the Amendment recites that the parking assist apparatus comprises the target parking position setting means that sets the target parking position, the traveling locus calculating means that calculates the traveling locus from a present vehicle position to the target parking position, memory means that maintains storage of the traveling locus generated before a change in the target parking position is performed until a new traveling locus is generated in response to the change of the target parking position after a parking assist control is started based on the traveling locus initially generated prior to the change in the target parking position, and parking assist means for assisting vehicle parking based on the

traveling locus. The parking assist means assists the parking of the vehicle based on the new traveling locus when the new traveling locus is generated by the traveling locus calculating means. The parking assist means also assists the parking of the vehicle at the target parking position based on the traveling locus stored in the memory means and generated before the change of the target parking position when the new traveling locus is not generated by the traveling locus calculating means following the change of the target parking position. In addition, the memory means maintains storage of the traveling locust generated immediately before the change of the target parking position is performed when the difference between the target parking position changed by the target parking position setting means and the target parking position set immediately before the target parking position is changed is equal to or smaller than a predetermined value. When the difference between the newly set target parking position and the target parking position set immediately before the change is equal to or smaller than the predetermined value, the traveling locus to the newly set target parking position stops being calculated, and the parking assist control is continued based on the traveling locus generated immediately before the change of the target parking position.

The Official Action sets forth a rejection of independent Claim 1, as well as dependent Claims 5 and 7, based on the disclosure in U.S. Patent No. 6,424,895 to *Shimizu et al.* That rejection is respectfully traversed as there are a number of differences between the claimed parking assist apparatus at issue here and the disclosure in *Shimizu et al.*

Shimizu et al. describes an automatic steering system for a vehicle that includes a steering actuator 7 for steering the vehicle wheels based on a driver's

steering operation, a memory for 23 storing the locus of movement of the vehicle to a target position, a controller 22 that controls the steering actuator based on the locus of movement stored in the memory, and a determining device 24 that determines the presence or absence of an obstacle in the locus of movement, or an obstacle that will come into the locus of movement of the vehicle. The automatic steering system is thus intended to perform avoidance measures to prevent the vehicle from contacting the obstacle during automatic parking control and to not carry out a needless execution of automatic parking control when an obstacle exists within the locus of movement of the vehicle at the start of automatic parking control.

In connection with the illustration in Fig. 10, *Shimizu et al.* describes a situation in which the vehicle is moved near a garage where the vehicle is to be parked, with the left side of the vehicle located as close as possible to the garage entrance. The vehicle is stopped at a start position at which a predetermined reference point (e.g., the left side view mirror) is aligned with a center line of the garage. *Shimizu et al.* describes that when the vehicle is stopped at the start position to begin automatic parking control, the position at which the vehicle is actually stopped may deviate from the desired start position. In such a situation, the vehicle which was to be moved through the locus of movement indicated by the solid line in Fig. 10 to reach the parking position during automatic parking control is actually moved through the locus of movement depicted by the dashed line in Fig. 10 due to the deviation in the start position. Thus, the final parking position also deviates from the target parking position. The optimal parking position is varied depending upon the surrounding environment around the parking position. *Shimizu et al.* thus describes that an optimal parking position is determined based on the

surrounding situation detected by the object detecting means S_6 when the vehicle is stopped at the start position. Thus, the automatic steering system disclosed in *Shimizu et al.* describes storing a locus of movement from a start position P_0 to a parking position R_0 and points out that when a shift occurs in the starting position, or when an obstacle exists in the locus from P_0 to R_0, the locus of movement is corrected to a locus from a real start position P to an optimal parking position R.

One of the differences between the claimed parking assist apparatus at issue here and the disclosure in *Shimizu et al.* is that the parking assist apparatus here includes the parking assist means which assists the parking of the vehicle at the target parking position based on the stored traveling locus generated before the change of the target parking position when the new traveling locus is not generated by the traveling locus calculating means following the change of the target parking position by the target parking position setting means. That is, following the change of the target parking position, if the new traveling locus is not generated by the traveling locus calculating means, the parking assist means assists the vehicle parking at the target parking position based on the stored traveling locus generated before the change of the target parking position.

The Official Action addresses this claimed aspect of the parking assist apparatus by noting that, in the system described in *Shimizu et al.*, "if the new traveling locus is not generated (when the start position of the vehicle is the same as the start position of the stored position) the parking assist means assists the parking based on the traveling locus stored in the memory." However, this position is not consistent with the claim wording. That is, Claim 1 recites that the parking assist means assists the vehicle parking at the target parking position based on the stored

traveling locus generated before the change of the **target parking position** when the new traveling locus is not generated following the change of the **target parking position** by the target parking position setting means. The claim thus recites that following the change of the target parking position, if a new traveling locus is not generated, the parking assist means assists the parking of the vehicle based on the stored traveling locus generated before the change of the target parking position. The interpretation in the Official Action that a new traveling locus is not generated in *Shimizu et al.* when the **start position** of the vehicle is the same as the previously stored **start position** does not address the actual claim language because the claim language does not refer to the start position. Rather, as noted, Claim 1 recites that after a change of the target parking position, if the new traveling locus is not generated by the traveling locus calculating means, the parking assist means assists the vehicle parking at the target parking position based on the stored traveling locus generated before the change of the target parking position. The discussion beginning near the bottom of page 13 of the present application, for example, discusses this aspect of the claimed parking assist apparatus. A careful reading in the disclosure in *Shimizu et al.* reveals that there is no disclosure of assisting vehicle parking based on a stored traveling locus generated before a change in the target parking position when a new traveling locus is not generated following a change in the target parking position.

Claim 1 is also distinguishable over the disclosure in *Shimizu et al.* in that Claim 1 recites that the memory means maintains storage of the traveling locus generated immediately before the change of the target parking position when the difference between the changed target parking position and the target parking

position set immediately before the changed target parking position is equal to or smaller than a predetermined value. Claim 1 further sets forth that when the difference between the newly set target parking position and the target parking position set at a time immediately before the change of the target parking position is equal to or smaller than such predetermined value, the traveling locus to the newly set target parking position stops being calculated and parking assist control is continued based on the traveling locus generated at a time immediately before the change of the target parking position.

As noted, the automatic steering system disclosed in *Shimizu et al.* describes storing a locus of movement from a start position P_0 to a parking position R_0 and points out that when a shift occurs in the starting position, or when an obstacle exists in the locus from P_0 to R_0, the locus of movement is corrected to a locus from a real start position P to an optimal parking position R. However, there is absolutely no recognition in *Shimizu et al.* that when the difference between a changed target parking position and the target parking position set immediately before the changed target parking position is equal to or smaller than a predetermined value, the storage of the traveling locus generated immediately before the change of the target parking position is maintained in the memory means. *Shimizu et al.* also lacks disclosure that when such difference is determined to be smaller than the predetermined value, the traveling locus to the newly set target parking position is not calculated or stops being calculated, with parking assist control being continued based on the traveling locus generated at a time immediately before the change of the target parking position. Further, *Shimizu et al.* is devoid of any recognition that such features would

be desirable or would provide desirable results in the context of the disclosed automatic steering system.

The Official Action recognizes these deficiencies in *Shimizu et al.*, but states that these differences are matters of design choice. No basis exists for this position. That these aspects of the claimed parking assist apparatus are not design choices is rather apparent from the disclosure in the present application. The discussion in the background portion of the application describing other known systems identifies drawbacks associated with other known systems that determine a new traveling locus whenever the target parking position is changed, without consideration of any relationship between the new target parking position and the target parking position set before the change. In contrast, the apparatus here identifies situations when the difference between a changed target parking position and the target parking position set immediately before the changed target parking position is equal to or smaller than a predetermined value, maintains in memory the traveling locus generated immediately before the change of the target parking position is maintained in the memory means, does not calculate or stops calculating the traveling locus to the newly set target parking position, and continues parking assist control based on the traveling locus generated at a time immediately before the change of the target parking position.

In the event the Examiner continues to believe that differences between the claimed subject matter at issue here and the disclosure in *Shimizu et al.* are matters of design choice, the Examiner is kindly asked to explain in more detail the basis for such position and the reasons why an ordinarily skilled artisan would have been

motivated to implement these differences in the automatic steering system described in *Shimizu et al.*

In light of at least the foregoing differences between the claimed parking assist apparatus recited in Claim 1, and the disclosure in *Shimizu et al.*, it is respectfully submitted that the claimed parking assist apparatus is patentably distinguishable over the disclosure in *Shimizu et al.* Accordingly, withdrawal of the rejection of record and allowance of this application are earnestly solicited.

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

BUCHANAN INGERSOLL PC

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